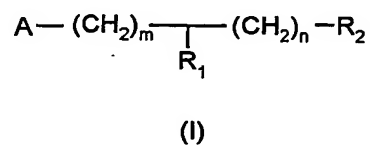


AMENDED CLAIMS

[received by the International Bureau on 06 August 2004 (06.08.04);
original claims 1-15 replaced by amended claims 1-15 (21 pages)]

1. A compound of structural formula (I):



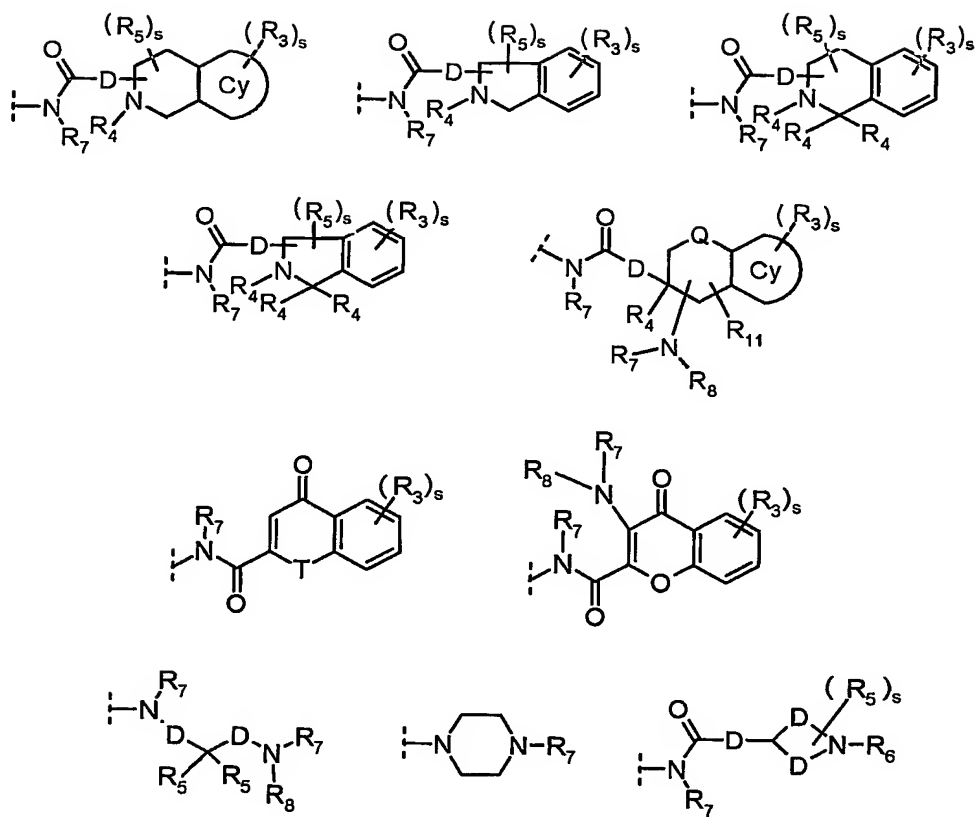
or a pharmaceutically acceptable salt or a solvate thereof, wherein

R₁ is:

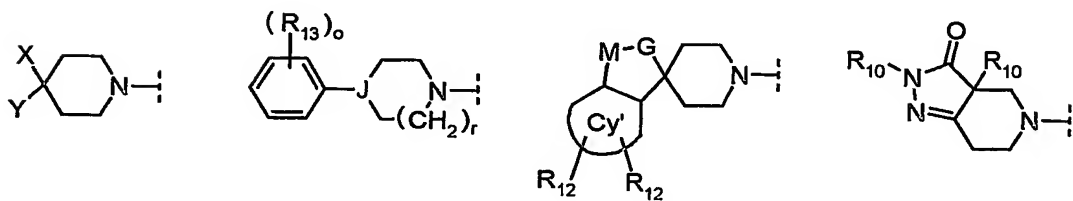
(D)-aryl or (D)-heteroaryl,

wherein aryl and heteroaryl are unsubstituted or substituted;

R₂ is:



A is:



each R_3 is independently:

hydrogen,
halo,
alkyl,
haloalkyl,
hydroxy,
alkoxy,
S-alkyl,
SO₂-alkyl,
O-alkenyl,
S-alkenyl,
NR₁₅C(O)R₁₅,
NR₁₅SO₂R₁₅,
N(R₁₅)₂,
(D)-cycloalkyl,
(D)-aryl (wherein aryl is phenyl or naphthyl),
(D)-heteroaryl,
(D)-heterocyclyl (wherein heterocyclyl excludes a heterocyclyl containing a single nitrogen), and
wherein aryl, heteroaryl, heterocyclyl, alkyl and cycloalkyl is unsubstituted or substituted, and two adjacent R_3 may form a 4- to 7-membered ring;

each R_4 is independently:

hydrogen,
alkyl,
C(O)-alkyl,
SO₂alkyl,
SO₂aryl,
(D)-aryl or
(D)-cycloalkyl;

each R_5 is independently:

hydrogen,
alkyl,
(D)-aryl,
(D)-heteroaryl,
(D)- $N(R_7)_2$,
(D)- $NR_7C(O)$ -alkyl,
(D)- NR_7SO_2 -alkyl,
(D)- $SO_2N(R_7)_2$,
(D)-(O)_q-alkyl,
(D)-(O)_q(D)- NR_7COR_7 ,
(D)-(O)_q(D)- $NR_7SO_2R_7$,
(D)-(O)_q-heterocyclyl or
(D)-(O)_q(alkyl)-heterocyclyl;

each R_6 is independently:

hydrogen,
alkyl,
(D)-phenyl,
C(O)-alkyl,
C(O)-phenyl,
SO₂-alkyl or
SO₂-phenyl;

R_7 and R_8 are each independently:

hydrogen,
alkyl or
(D)-cycloalkyl, or

R₇ and R₈ together with the nitrogen to which they are attached form a 5- to 8-membered ring optionally containing an additional heteroatom selected from O, S and NR₄,
wherein alkyl and cycloalkyl are unsubstituted or substituted;

R₁₀ is independently:

hydrogen,
alkyl,
(D)-aryl or
(D)-cycloalkyl;

R₁₁ is:

hydrogen or
alkyl;

R₁₂ is:

hydrogen,
halo,
alkyl,
alkoxy,
C≡N,
CF₃ or
OCF₃;

R₁₃ is independently:

hydrogen,
hydroxy,
cyano,
nitro,
halo,

alkyl,
 alkoxy,
 haloalkyl,
 (D)-C(O)R₁₅,
 (D)-C(O)OR₁₅,
 (D)-C(O)SR₁₅,
 (D)-C(O)-heteroaryl,
 (D)-C(O)-heterocyclyl,
 (D)-C(O)N(R₁₅)₂,
 (D)-N(R₁₅)₂,
 (D)-NR₁₅COR₁₅,
 (D)-NR₁₅CON(R₁₅)₂,
 (D)-NR₁₅C(O)OR₁₅,
 (D)-NR₁₅C(R₁₅)=N(R₁₅),
 (D)-NR₁₅C(=NR₁₅)N(R₁₅)₂,
 (D)-NR₁₅SO₂R₁₅,
 (D)-NR₁₅SO₂N(R₁₅)₂,
 (D)-NR₁₅(D)-heterocyclyl,
 (D)-NR₁₅(D)-heteroaryl,
 (D)-OR₁₅,
 OSO₂R₁₅,
 (D)-[O]_q(cycloalkyl),
 (D)-[O]_q(D)-aryl,
 (D)-[O]_q(D)-heteroaryl,
 (D)-[O]_q(D)-heterocyclyl (wherein heterocyclyl excludes a heterocyclyl containing a single nitrogen when q=1),
 (D)-SR₁₅,
 (D)-SOR₁₅,
 (D)-SO₂R₁₅ or
 (D)-SO₂N(R₁₅)₂,

wherein alkyl, alkoxy, cycloalkyl, aryl, heterocyclyl and heteroaryl are unsubstituted or substituted;

each R₁₅ is independently:

hydrogen,
alkyl,
haloalkyl,
(D)-cycloalkyl,
(D)-aryl (wherein aryl is phenyl or naphthyl),
(D)-heteroaryl,
(D)-heterocyclyl (wherein heterocyclyl excludes a heterocyclyl containing a single nitrogen), and
wherein aryl, heteroaryl, heterocyclyl, alkyl and cycloalkyl is unsubstituted or substituted;

R₁₇ is independently:

R₁₀ or
(D)-heterocyclyl;

R₁₈ is independently:

R₁₀,
(D)-heteroaryl,
(D)-heterocyclyl,
(D)-N(Y)₂,
(D)-NH-heteroaryl or
(D)-NH-heterocyclyl,

wherein aryl, heteroaryl, alkyl, D, cycloalkyl and heterocyclyl are unsubstituted or substituted, or

two R_{18} groups together with the atoms to which they are attached form a 5- to 8-membered mono- or bi-cyclic ring system optionally containing an additional heteroatom selected from O, S, NR_{10} , NBoc and NZ;

Cy is:

aryl,
5- or 6-membered heteroaryl,
5- or 6-membered heterocyclyl or
5- or 7-membered carbocyclyl;

Cy' is:

benzene,
pyridine or
cyclohexane;

X is:

alkyl,
(D)-cycloalkyl,
(D)-aryl,
(D)-heteroaryl,
(D)-heterocyclyl,
(D)- $C\equiv N$,
(D)- $CON(R_{17}R_{17})$,
(D)- CO_2R_{17} ,
(D)- COR_{17} ,
(D)- $NR_{17}C(O)R_{17}$,
(D)- $NR_{17}CO_2R_{17}$,
(D)- $NR_{17}C(O)N(R_{17})_2$,
(D)- $NR_{17}SO_2R_{17}$,
(D)- $S(O)_pR_{17}$,

(D)-SO₂N(R₁₇)(R₁₇),
(D)-OR₁₇,
(D)-OC(O)R₁₇,
(D)-OC(O)OR₁₇,
(D)-OC(O)N(R₁₇)₂,
(D)-N(R₁₇)(R₁₇) or
(D)-NR₁₇SO₂N(R₁₇)(R₁₇),

wherein aryl, heteroaryl, alkyl, D, cycloalkyl and heterocyclyl are unsubstituted or substituted;

Y is:

hydrogen,
alkyl,
(D)-cycloalkyl,
(D)-aryl,
(D)-heterocyclyl or
(D)-heteroaryl,

wherein aryl, heteroaryl, alkyl, D and cycloalkyl are unsubstituted or substituted;

Q is a bond, O, S(O)_u, NR₆ or CH₂;

D is a bond or C₁ - C₄ alkyl;

E is O, S or NR₆;

G is D, CH-alkyl, O, C=O or SO₂, with the proviso that when G is O, the ring atom M is carbon;

J is N or CH;

M is CHCO_2Y , $\text{CHC}(\text{O})\text{N}(\text{Y})_2$, $\text{NSO}_2\text{R}_{18}$, $\text{CHN}(\text{Y})\text{COR}_{18}$, $\text{CHN}(\text{Y})\text{SO}_2\text{R}_{18}$, CHCH_2OY or $\text{CHCH}_2\text{heteroaryl}$;

T is O or NR_7 ;

n is 0 - 3;

m is 1 - 3;

o is 0 - 3;

p is 0 - 2;

q is 0 or 1;

r is 1 or 2;

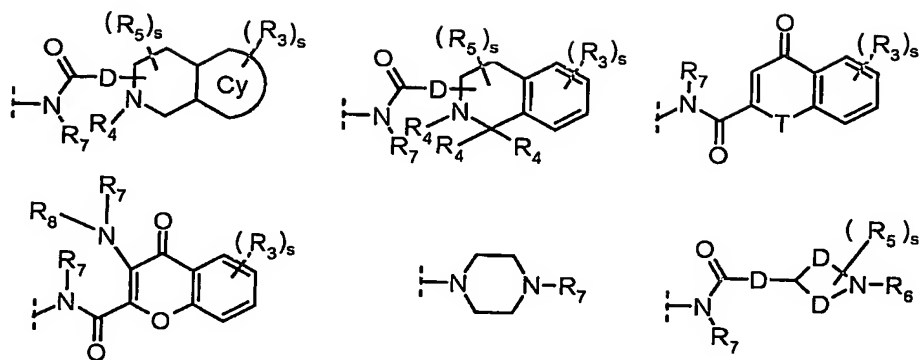
s is 0 - 3;

u is 0 - 2.

2. The compound of claim 1, wherein

R_1 is (D)-aryl which may be substituted with one to three substituents independently selected from the group consisting of cyano, nitro, perfluoroalkoxy, halo, alkyl (D)-cycloalkyl, alkoxy, hydroxy and haloalkyl;

R₂ is:



R₃ is independently:

hydrogen,
halo,
alkyl,
hydroxy,
alkoxy,
S-alkyl,
SO₂-alkyl,
O-alkenyl,
S-alkenyl,
haloalkyl or
(D)-cycloalkyl;

R₄ is:

hydrogen or
alkyl;

each R₅ is independently:

hydrogen,

alkyl,
(D)-aryl,
(D)-heteroaryl,
(D)-N(R₇)₂,
(D)-NR₇C(O)alkyl or
(D)-NR₇SO₂alkyl;

R₇ and R₈ are each independently:

hydrogen,
alkyl or
cycloalkyl, or

R₇ and R₈ together with the nitrogen to which they are attached form a 5- to 7-membered ring optionally containing an additional heteroatom selected from O, S and NR₄;

R₉ is:

alkyl,
OR₁₀,
(D)-aryl,
(D)-cycloalkyl,
(D)-heteroaryl and
halo;

R₁₂ is:

hydrogen,
halo,
alkyl,
alkoxy or
C≡N;

R₁₃ is independently:

hydrogen,
hydroxy,
cyano,
nitro,
halo,
alkyl,
alkoxy,
haloalkyl,
(D)-C(O)-heterocyclyl,
(D)-N(R₁₅)₂,
(D)-NR₁₅COR₁₅,
(D)-NR₁₅CON(R₁₅)₂,
(D)-NR₁₅C(O)OR₁₅,
(D)-NR₁₅C(R₁₅)=N(R₁₅),
(D)-NR₁₅C(=NR₁₅)N(R₁₅)₂,
(D)-NR₁₅SO₂R₁₅ or
(D)-NR₁₅SO₂N(R₁₅)₂;

each R₁₄ is independently:

hydrogen,
halo,
alkyl,
(D)-cycloalkyl,
alkoxy or
phenyl;

each R₁₅ is independently:

hydrogen,
halo,

alkyl,
(D)-cycloalkyl,
alkoxy or
phenyl;

each R₁₆ is independently:

hydrogen,
alkyl or
cycloalkyl;

X is:

alkyl,
(D)-cycloalkyl,
(D)-aryl,
(D)-heteroaryl,
(D)-heterocyclyl,
(D)-NHC(O)R₁₇,
(D)-CO₂R₁₇ or
(D)-CON(R₁₇R₁₇);

Y is:

hydrogen,
alkyl,
(D)-cycloalkyl,
(D)-aryl,
(D)-heterocyclyl or
(D)-heteroaryl;

Cy is:

aryl,

5- or 6-membered heteroaryl,
5- or 6-membered heterocyclyl or
5- to 7-membered carbocyclyl;

Cy' is benzene or pyridine;

D is a bond or C₁ - C₄-alkylene;

M is NSO₂R₁₈, CHN(Y)COR₁₈ or CHN(Y)SO₂R₁₈;

G is D or CH-alkyl;

T is NR₇ or O;

n is 0 or 1;

m is 1 or 2;

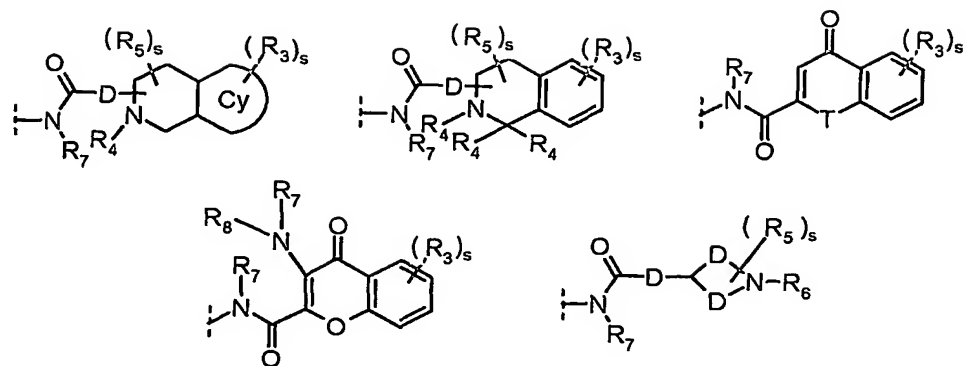
r is 1;

s is 0, 1 or 2.

3. The compound of claims 1 or 2, wherein

R₁ is (D)-phenyl or (D)-naphthyl which may be substituted with one or two substituents independently selected from the group consisting of perfluoroalkoxy, halo, alkyl, alkoxy and haloalkyl;

R_2 is:



R_3 is hydrogen or halo;

R_4 is hydrogen;

R_5 is hydrogen;

R_7 and R_8 are each independently:

hydrogen or

alkyl, or

R_7 and R_8 together with the nitrogen to which they are attached form a 5- to 6-membered ring optionally containing an additional oxygen atom;

R_{12} is:

hydrogen,

halo or

$C_1 - C_4$ alkyl;

R_{13} is independently:

cyano,

nitro,
halo,
alkyl,
(D)-C(O)-heterocyclyl,
(D)-N(R₁₅)₂,
(D)-NR₁₅COR₁₅,
(D)-NR₁₅CON(R₁₅)₂,
(D)-NR₁₅C(O)OR₁₅ or
(D)-NR₁₅SO₂R₁₅;

each R₁₄ is independently:

hydrogen,
halo,
alkyl,
alkoxy or
phenyl;

each R₁₅ is independently:

hydrogen,
halo,
alkyl,
alkoxy or
phenyl;

X is:

alkyl,
(D)-cycloalkyl,
(D)-heterocyclyl,
(D)-NHC(O)R₁₇ or
(D)-CON(R₁₇R₁₇);

Y is:

hydrogen,
alkyl,
(D)-cycloalkyl or
(D)-heterocyclyl;

Cy is

aryl or
5- or 6-membered heteroaryl;

Cy' is benzene;

D is a bond or CH₂;

M is NSO₂R₁₈;

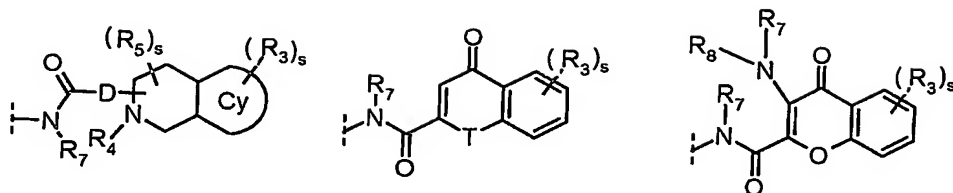
G is D;

s is 0 or 1.

4. The compound of any of claims 1 to 3, wherein

R₁ is (CH₂)-phenyl or (CH₂)-naphthyl which may be substituted with one to three halo atoms;

R₂ is:



R₁₂ is hydrogen;

R₁₃ is independently:

cyano,

nitro,

halo or

(D)-NR₁₅COR₁₅;

X is:

C₁ - C₄ alkyl,

C₅ - C₇ cycloalkyl,

(D)-CON(R₁₇R₁₇) or

N-containing heterocyclyl;

Y is:

hydrogen,

C₁ - C₄ alkyl or

C₅ - C₇ cycloalkyl;

Cy is aryl;

G is CH₂.

5. The compound of any of claims 1 to 4 for use as a medicament.
6. Use of the compound of any of claims 1 to 4 for the preparation of a medicament for the treatment or prevention of disorders, diseases or conditions responsive to the modulation of the melanocortin-4 receptor in a mammal, where modulation means activation in the case of MC4-R agonists or inactivation in the case of MC4-R antagonists.
7. Use of MC4-R antagonists according to claims 6 for the preparation of a medicament for the treatment or prevention of cancer cachexia.
8. Use of MC4-R antagonists according to claims 6 for the preparation of a medicament for the treatment or prevention of muscle wasting.
9. Use of MC4-R antagonists according to claims 6 for the preparation of a medicament for the treatment or prevention of anorexia.
10. Use of MC4-R antagonists according to claims 6 for the preparation of a medicament for the treatment or prevention of anxiety and/or depression.
11. Use of MC4-R agonists according to claims 6 for the preparation of a medicament for the treatment or prevention of obesity.
12. Use of MC4-R agonists according to claims 6 for the preparation of a medicament for the treatment or prevention of diabetes mellitus.

13. Use of MC4-R agonists according to claims 6 for the preparation of a medicament for the treatment or prevention of male or female sexual dysfunction.
14. Use of MC4-R agonists according to claims 6 for the preparation of a medicament for the treatment or prevention of erectile dysfunction.
15. A pharmaceutical composition which comprises a compound of any of claims 1 to 4 and a pharmaceutically acceptable carrier.